REMARKS

I. Introduction

With the cancellation of claims 11 and 14, without prejudice, claims 9, 12, 13, 15, 18 and 19 are currently pending. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 9, 11-15, 18 and 19 Under 35 U.S.C. § 112, first paragraph

Claims 9, 11-15, 18 and 19 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

In particular, with respect to independent claims 18 and 19, the Office Action alleges that the features "determining a particulate emission rate of the internal combustion engine based on at least: a) one first operating parameter of the internal combustion engine; and b) an oxygen concentration in exhaust gas of the internal combustion engine; and integrating the particle emission rate over time, resulting in a loading state of the particle filter" are not supported by the originally filed disclosure. Applicants respectfully traverse this allegation and submit that the originally filed specification provides adequate support for the subject matter of claims 18 and 19, as explained below.

In FIGS. 2 and 4 and the accompanying text of the specification, a quantity GR, which is a particle emission rate, is stored as a function of the operating state of the internal combustion engine, including such parameters as speed N, injected volume ME and/or the quantity characterizing the oxygen concentration. See original specification, page 7, lines 27-34. Since the speed and injected volume constitute "first operating parameters," this passage of original specification clearly supports the first limitation of "determining a particulate emission rate of the internal combustion engine based on at least one first operating parameter of the internal combustion engine and an oxygen concentration in the exhaust gas of the internal combustion engine." The original specification further provides that this value (GR) is adjusted in nodes 205, 210 (p. 8, l. 5-17), and subsequently integrated by integrator 220, resulting in a state of congestion (B). See original specification, page 9, lines 5-11. Accordingly, the original specification clearly supports the limitation of "integrating the particle emission rate over time, resulting in a loading state of the particle filter."

It is accordingly submitted that the originally filed specification satisfies the written description requirement and provides support for claims 18 and 19, as well as their dependent claims 9, 12, 13 and 15.

With respect to claims 11 and 14, these claims have been canceled, without prejudice, and therefore the rejection is moot with respect to these claims.

In view of the foregoing, withdrawal of the rejection of the pending claims under 35 U.S.C. 112, first paragraph, is respectfully requested.

III. Rejection of Claims 9, 11-13, 18 and 19 Under 35 U.S.C. § 102(b)

Claims 9, 11-13, 18 and 19 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,195,316 to Shinzawa et al. ("Shinzawa").

To anticipate a claim under § 102(b), a single prior art reference must identically disclose each and every claim element. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997).

In the Office Action, it is acknowledged that Shinzawa does not disclose (or even suggest) the features of dependent claim 14, namely, detecting an error in accordance with the quantity (loading state of the filter). Since the features of dependent claim 14 have been incorporated into independent claims 18 and 19, it is submitted that Shinzawa does not anticipate the subject matter of these claims, or of claims 9, 12 and 13, which depend from claim 18.

Withdrawal of the anticipation rejection of claims 9, 11-13, 18 and 19 is accordingly respectfully requested.

IV. Rejection of Claims 14 and 15 Under 35 U.S.C. §103(a)

Claims 14 and 15 have been rejected as being unpatentable under 35 U.S.C. §103(a) over Shinzawa in view of U.S. Patent 4,574,589 to Hasegawa et al. ("Hasegawa"). Applicants respectfully submit that the cited references do not render obvious the features of claims 14 and 15.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria

must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 14 has been canceled, without prejudice, and its features have been incorporated into independent claims 18 and 19. Claims 18 and 19, as amended, recite the feature of detecting an error in a state of congestion derived based on exhaust gas flow rate in accordance with the loading state resulting from the integration.

With respect to this feature, the specification of the present invention provides:

> The exhaust treatment system is controlled during normal operation based on this state of congestion BI. If an error occurs in the exhaust treatment system, for example, when detecting or recording differential pressure DP, error detector 415 controls switching unit 410 so that signal B of simulation element 400 is used to control the exhaust treatment system.

Substitute Specification, page 9, line 33 to page 10, line 4 (emphasis added).

The Office Action alleges that Hasegawa "teaches that it is conventional in the art to measure a loading of the filter using pressure sensors and [to] compare the loading with a predicted loading based on engine operating conditions," and that "it would have been obvious to one having ordinary skill in the art, to have utilized the teaching of Hasegawa in the Shinzawa device, since the use thereof would have improved the operation efficiency for the particulate filter by determining and correcting a loading value of the filter."

It is submitted that the Hasegawa reference does not cure the deficiencies of the primary Shinzawa reference because Hasegawa actually teaches the reverse of detecting an error in a state of congestion derived based on exhaust gas flow rate (a directly measured quantity) using a simulated loading state. Hasegawa refers to correcting a primary reference pressure limit (Pt), which is calculated based on engine parameters, using a difference between an initial pressure level (P0) and a reference level (P1), resulting in a correcting limit (Pc). See Hasegawa, col. 5, lines 36-56. It is initially noted that Hasegawa refers to pressure limit values and does not refer to loading states, as claimed. Moreover, Hasegawa teaches

correcting a simulated value, i.e., a value derived from engine parameters, using a directly measured parameter -- an initial pressure value (P0). In contrast, claims 18 and 19 plainly recite *using the simulated loading state* to correct an error in a state of congestion derived based on exhaust gas flow rate, which is a measured value. This distinction is significant in that the present invention calls for using the simulated loading state as a backup in case of error in the directly measured quantity, while Hasegawa does not use the simulated value for these purposes, and in fact actually modifies a simulated pressure limit based on a directly measured quantity.

It is therefore clear that Hasegawa does not disclose or suggest detecting an error in a state of congestion derived based on exhaust gas flow rate in accordance with the loading state resulting from the integration, and therefore Hasegawa fails to cure the deficiencies of the primary Shinzawa reference with respect to amended claims 18 and 19.

Withdrawal of the obviousness rejection of the pending claims based on Shinzawa and Hasegawa is therefore respectfully requested.

V. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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